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ABSTRACT

This environmental education teacher's guide focuses on the "built environment" or everything people have imposed on the natural physical environment. The guide provides objectives and a broad definition of environmental education, sample activities, suggestions for local consultants and resources, and an annotated list of both printed and audiovisual materials. Three general teaching approaches are recommended: (1) the observing, thinking, and discovery approach; (2) the theoretical problem approach where students make environmental decisions of hypothetical situations; and (3) the "real world" situation approach where students examine real problems which confront their community. Sample activities follow the three general approaches and include activities on local community environment, personal space, classroom environment, field trips, how the built environment influences feelings and senses, mapping, and measuring exercises. The guide seeks to prepare students for their present and future roles as users and shapers of the built environment. (Author/DE)

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A TEACHER INTRODUCTION TO ENVIRONMENTAL EDUCATION

THE AMERICAN INSTITUTE OF ARCHITECTS

SP 008 629

BUILT ENVIRONMENT

A TEACHER INTRODUCTION TO
ENVIRONMENTAL EDUCATION

THE AMERICAN INSTITUTE
OF ARCHITECTS

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1

PURPOSE

We shape our environments and they shape us. In fact, we spend as much as 95% of our lives in a built environment. It is time to realize that only a comparatively small number of square miles of the United States are NOT shaped or altered by people: Those areas are our surviving wilderness areas. The rest -- including our National Parks -- are all altered and controlled by our priorities in what we build, where we build and why we build.

It is not surprising that more and more teachers and school officials are concerned with fostering awareness and knowledge of our built surroundings. Educators are bringing this concern into the classroom, attempting to give our future decision makers the tools with which they can create and maintain a better quality of life.

With this INTRODUCTION we hope to connect you with the work of these other educators, in the following four ways:

-- to provide you with some objectives of and a broad definition of what environmental education is;
-- to supply sample activities you can initiate immediately if you're interested;
-- to suggest where you can find help locally;
-- to identify material resources to back up and reinforce your individual environmental education program.

Environmental education is not a new class to teach. Rather it is a fresh way to approach, consider and apply what you are already teaching in the classroom.

We hope that you will be able to weave a thread of built environment emphasis through your existing classes in ways you find appropriate. For this reason we have consciously tried not to describe a single approach, a rigidly defined curriculum or specific "musts." Instead, we have supplied you with a number of choices -- hopefully enough to help you begin adding your own ideas.

In any subject a child's experiences begin in the earliest years and constantly increase throughout the entire school life. But in most children's schoolroom-based learning, conscious attention and awareness of the built environment has been minimal. Of course, verbally-oriented instruction does not have to rule out nonverbal awareness. With your guidance students can be reconnected with the natural preschool and out-of-school awareness of their physical environments. The rich experience of objects, rooms, yards, streets and places provides opportunities to play, to explore, to examine and to learn.

We don't expect a sudden children's crusade to improve our environments. However, we hope more thoughtful children will grow to become more thoughtful adults. Thoughtful adults, equipped with skills

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and values, may take the reasoned action necessary to shape cities, towns and countrysides into better places to live and remain active in efforts to ensure that they will continue to be so in the future.

2

THE ARCHITECT's CONCERN FOR ENVIRONMENTAL EDUCATION

Why, you may ask, are architects stressing education about the built environment?

Today's architects are concerned with environmental education because they are concerned with achieving and preserving quality in everyone's environments. For this to happen on a meaningful scale in the United States there must be a widespread expectation and demand for quality in the environment. Executive Director of the Association of Collegiate Schools of Architecture, David Clarke, has explained it this way:

> "In the 18th century, say, society was easier to 'manage' than it is today -- and when an architect was called upon to design a summer palace for a nobleman there were many design decisions that never had to be made -- they were just understood. No one worried about the 'psychological impact' of the mansion on the nobleman because there was an existing 'noble' style that fitted his entire social class. Site planning and regional planning were not problems either, because the nobleman owned vast lands to choose from and had to make concessions to no one."

Nobles, the Church, and enlightened monarchs are no longer the primary clients for architects and builders, however. Private individuals, small businessmen and manufacturers, giant corporations, and a wide variety of governmental committees, commissions and departments make building decisions (alone, or with professional advice) which affect everyone, rich and poor alike. It is within this complex situation that the questions of meaning and psychological impact have risen. Clarke continues:

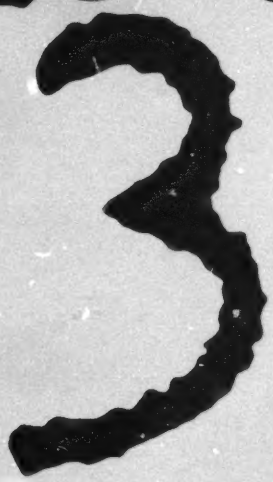
> "What is the meaning of a large public performing arts building -- built with public dollars -- that is site-planned in such a way as to be virtually inaccessible to 'common' people? A building that is not on convenient bus routes, is not near subway stations and does not have convenient and inexpensive parking facilities? What is the meaning a city hall plaza -- a traditional place for public gatherings since ancient Greece -- that does not permit the public gatherings for which it is clearly a symbol?
>
> "In general, the answer to these questions is that architecture and planning 'say things' -- they broadcast messages, often

loudly and clearly. Architecture, like any other man-made product, embodies values and cultural priorities. Archeologists for years have been trying to reconstruct the values of ancient cultures from their artifacts. Only recently have we begun to examine this process in the present -- BEFORE it becomes ancient history.

"Architectural projects today are too vast and affect too many people to guess at the social and psychological impact of spaces on people in the way they did in the Beaux-Arts days. A perfect example of 'wrong guessing' is a recent large public housing project in the Midwest which was built and torn down within a ten-year period. It was torn down because the vandalism and crime were so extensive as to make the buildings uninhabitable. The question of what generated such an overwhelming self-destructive impulse is still unanswered." *

Today's architects cannot be the only ones studying these factors, for architects affect only a small part of what is built.

To insure better environments architects must depend on many more people -- you and your students, for a start.



BUILT ENVIRONMENT DEFINED

Someone has said that the built environment is anything we cannot attribute to Mother Nature. In fact, deciding not to build anything on a tract of land is a built environment decision. In other words, the built environment is everything people have imposed on the natural environment.

Use this list to recall a mental map of your community:

-- the local post office, your school building, city hall;
-- rows of apartment houses and shops;
-- fountains, statues, parks;
-- streets, plazas, squares;
-- houses, gardens, banks of planted trees;
-- the old red brick factory with round arches and large windows;
-- new metal roadside warehouses;
-- chains of motels, interstate highways;
-- farmers' fields, gravelled forest paths;
-- boat docks on the lake;
-- a collection of objects in a room, a collection of rooms;
-- shopping centers, acres of parking;
-- the corner store.

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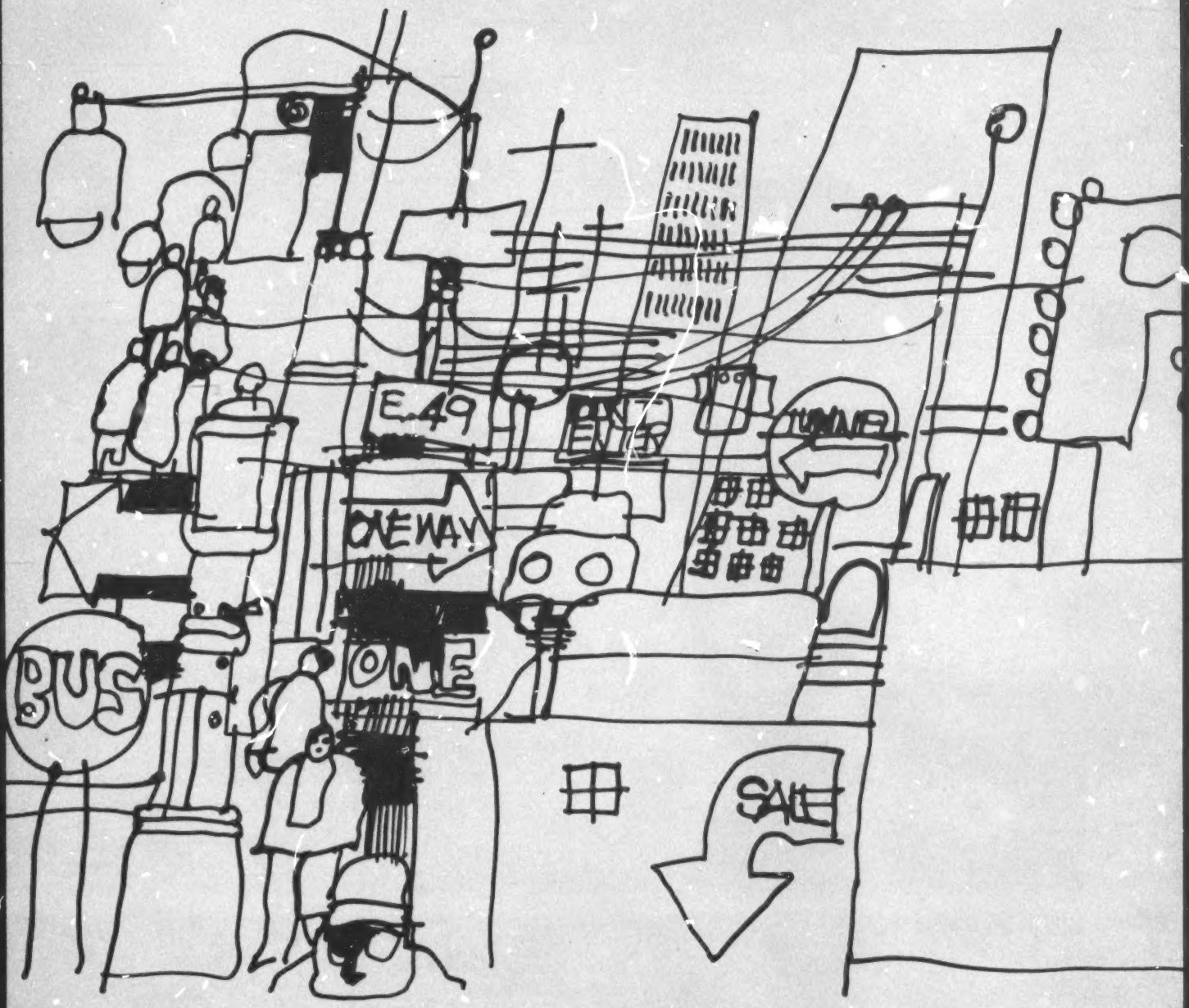
* From "A Brief Essay on Architectural Education" by David Clarke, part of Architectural Schools in North America, © ACSA 1973.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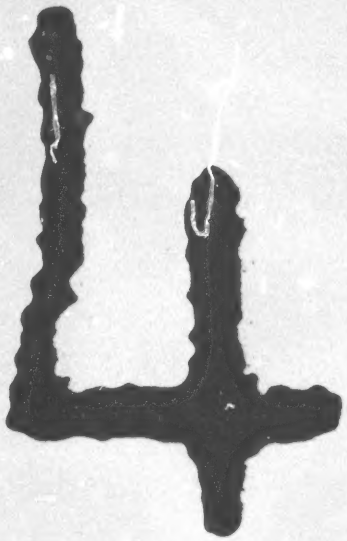

BUILT ENVIRONMENTAL EDUCATION DEFINED

Environmental education begins at any age -- the earlier the better -- and continues throughout life. It seeks to prepare people for their present and future role as users and shapers of the built environment.

In part, education about the built environment is:

<u>An educational process which deals with our surroundings</u>

- -- using all the personal and physical resources of your school and surrounding community as an educational laboratory for experience-based learning;
- -- learning what our basic needs are together with how and to what degree people can adapt to various environments;
- -- developing a new kind of attitude about people and their physical world;
- -- learning to understand our place in society and how and why this relationship changes in time and place;
- -- becoming aware of the design of the built environment and how it is linked to the natural environment;
- -- finding out how the environment affects our behavior and lifestyles, and learning how to measure these effects;
- -- studying the processes for improving the built environment so that we may enhance the quality of life.

<u>The discovery process -- a fresh new perspective into the familiar world about us</u>

- -- seizing opportunities -- environmental education can happen any time, any where, and place; *
- -- becoming aware of a relationship with the environment that was not perceived before. **

<u>Activity directed toward long-range goals</u>

- -- encouraging citizen participation to stimulate public leaders toward a better environment. ***

In all these definitions you will note that built environmental education is not merely conservation, outdoor research management or nature study; nor is it an introduction to architectural design. You will also note that a balanced and all-round view is important, since each time individuals or groups change, remove, neglect or overemphasize

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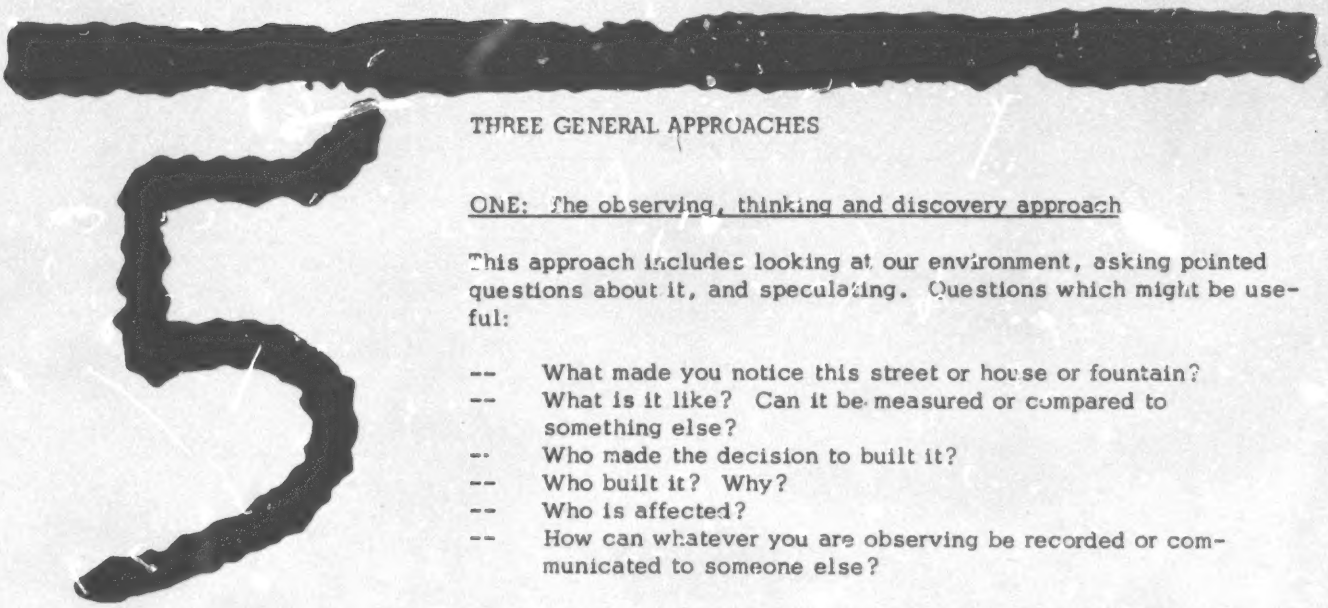
* Yellow Pages of Learning, Your City has been kidnapped } Books (p. 26)

** Beginning Experiences in Architecture: Book (p. 26)
How to Look at a City - Film (p. 28)

*** Urban Action: Planning for Change: Curriculum Kit (p. 27)

one aspect of the environment (natural or built), the repercussions pervade the whole system of our surroundings and our own lives.

Awareness comes with practice, action most often comes slowly so look for small steps that can be accomplished, and which contribute to a long range goal.



THREE GENERAL APPROACHES

ONE: The observing, thinking and discovery approach

This approach includes looking at our environment, asking pointed questions about it, and speculating. Questions which might be useful:

-- What made you notice this street or house or fountain?
-- What is it like? Can it be measured or compared to something else?
-- Who made the decision to built it?
-- Who built it? Why?
-- Who is affected?
-- How can whatever you are observing be recorded or communicated to someone else?

At first, almost all your work with your class will probably revolve around observation. Even in the more involved approaches observation remains the best way of developing usable facts for carrying out projects you have assigned to your class. Use any medium available -- written reports, oral reports, photographs, films, tapes, interviews, sketches, maps. Many schools are developing environmental education resource centers where materials are made available along with suggestions for self-learning experiences.

-- Example:
Photographing the environment. "Seeing" through the eye of a camera sharpens environmental focus. Inexpensive cameras can be used as a means to develop questions about the environment and to seek pictorial answers to such questions as "What happens at street corners? What are streets used for? What are backyards used for? Front yards? Why are there so many kinds of shops? How many kinds of windows, doors, garages, etc., can you find? Try to have the student select his own topic. The tighter the questions the more interesting and valuable the learning experience.

Consultants: A photographer, a film-maker (TV, University, etc.), a planner or an architect.

-- Example:
Interviewing allows understanding of both individual and com-

munity points of view, develops self confidence in one's own ideas and respect for other people's values. The interview "questionnaire" should be developed by the child led by the teacher. The questions can be attitudinal -- What do you like about your block? Or informative -- Where do you shop for food? The form should identify the person's age and position. Students can interview fellow students, friends, merchants, parents, teachers, policemen, etc. Data gathered can be the basis for many lessons.

Consultants: A personnel director, computer analyst, an opinion poll interviewer, a member of a citizen's advisory group who might be an architect.

The approach can be flexible. For a seventh grader, interviewing can be a rich experience. For first and second graders walking trips and visits to local businesses and institutions can be equally rewarding.

Overcome the fear of tackling the obvious, the simple, the immediate.

-- Example:
you might start by analyzing or communicating the effect of the space you're in right now.

TWO: The theoretical problem approach

You can build programs around a theoretical situation -- making decisions about a playground or school, neighborhood, or a new town. This kind of assignment gives direction to observational activities and helps motivate the class. It enables you and your students to see how different values, personal goals and objectives affect the definition of "desirable environment."

-- Example:
In the project, titled "Model City Laboratory", three teams of students, working with plastic modular "lego" blocks, built and changed and rebuilt a city during one full semester. To evaluate their project and to create new ideas, the teacher developed a multi-media resource center containing different subject areas.

THREE: The "Real World" Situation Approach

Sooner or later you should be drawn toward actual choices which confront your community.

You might set up your class program with a real problem such as the fate of a community park, downtown slum, commercial sprawl strip, a particular building or room, street signs, vacant lots; or how zoning shapes your school and the streets, buildings and yards on all sides of it.

To help think through choices and possible consequences, you may need to direct and prod discussion with questions such as these:

"Much of architecture affects people just beyond the focus of awareness."

Robert Sommer
Personal Space

-- Choices:
How would you describe the situation (or the problem?) What are some alternative ways to solve it? Which solution do you think is best? Why? What are the advantages or disadvantages of each alternative?

-- Consequences:
If X is changed, then what may happen to Y? If Jones Street is made into a play street, then what may happen as a result to the next street over? If a large apartment house is built on the vacant lot, then what might happen to the sunny backyards of adjacent houses? If a super highway is built through some section of town, what may happen to the people who live there? If prime farmland is used for suburbs or community expansion where will vegetables be grown?

As you might guess, any continued emphasis on environmental education in the classroom will probably combine all three of these approaches, maybe even others. During a writing or mapping skills unit, your assignment might be aimed at a neighborhood district by using the observing approach; later, to relate to a social studies or science unit, a theoretical model* of a neighborhood might be discussed and used for individual study work; finally, exploring solutions to a real neighborhood problem (such as garbage collection, lack of parking, lack of play space) might supplement a unit on government systems.

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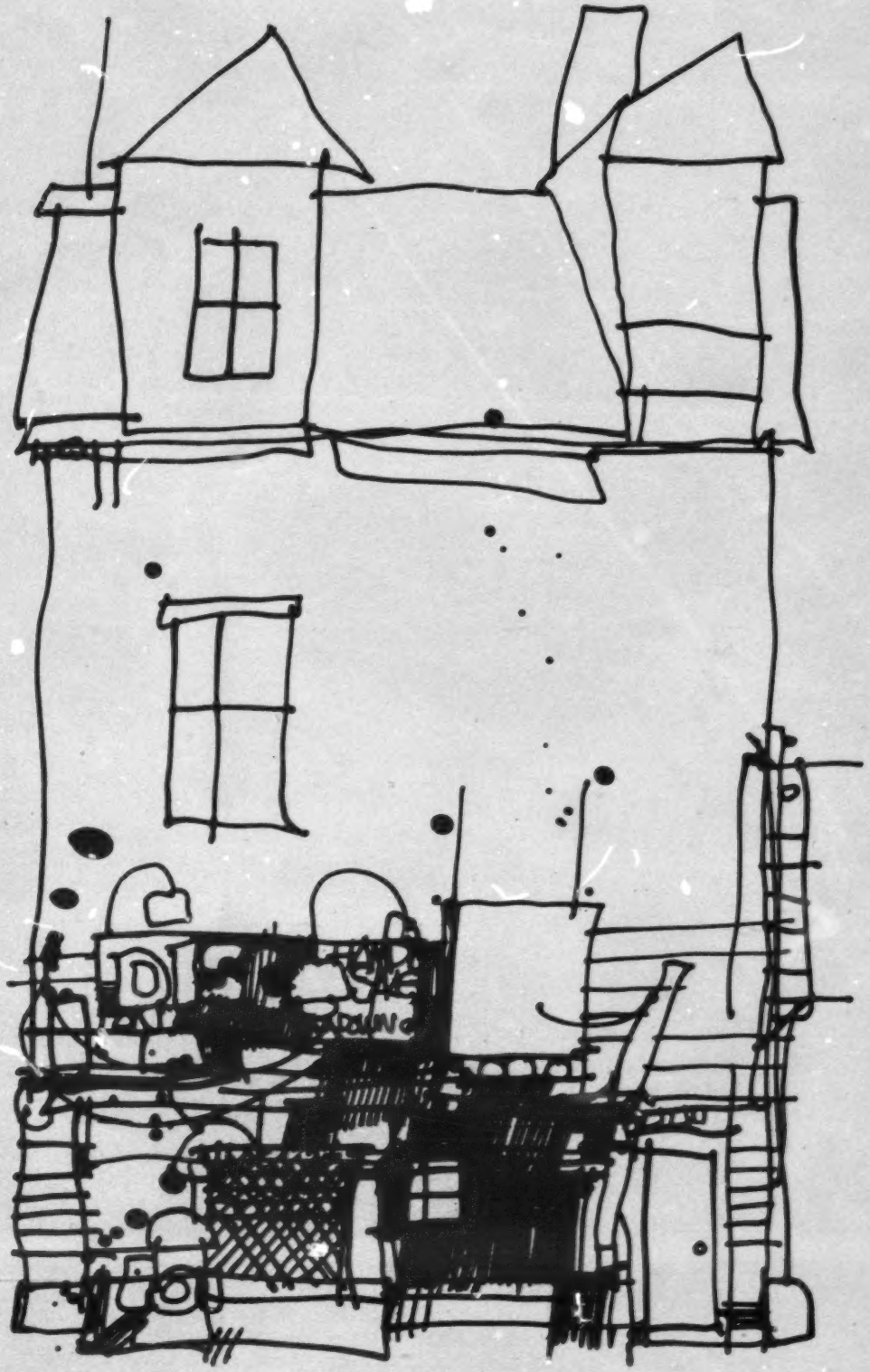
* See "Box City" and Urban Game Examples on p. 23



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USE OF RESOURCES

To begin a built environment emphasis in your classroom, don't wait for a book or kit to arrive. There is a rich world of resources ready for use; your classroom: the school and adjacent neighborhood; newspapers, magazines, books dealing with the community; people living and working in the community and the processes and activities in school, shops and offices.

You need an approach that puts all these potential materials to work. With them you can produce results more rewarding to you and your students than results derived from structured material. By its very definition education about the built environment calls for exploration of the spaces we live, play, study and work in every day.

Try Newspapers -- Here you and your students will find issues involving zoning, highway locations and urban renewal. Planning proposals and new developments are always being discussed. The real estate section provides and up-to-date index to available housing, housing costs and changing housing patterns and styles. *

Try People -- A great many are involved in the growth and change taking place in our communities. There are professionals in planning, architecture and landscape architecture; highway engineers, structural and mechanical engineers. There are governmental representatives who set policy, council members and commissioners, the zoning board and planning commission, housing agencies and many others. Individuals from any of these groups can be valuable classroom guests.

It is usually not difficult to find a willing architect or planner or other resource person. They can be contacted through the local branch of their professional societies, ** university departments, or the public agencies through which they work.

Don't be hesitant about asking your guests to come in ahead of time for planning, advice and direction. They may welcome your help in selecting appropriate materials and personal experiences to present to the student. Be sure to emphasize that you want their aid in providing a learning experience, not a technical lecture on their field. Occasionally, you may find someone unresponsive to your request. Remember we all have bad days and try another.

Try Maps -- They assist students to discover information about how their community is organized and provide a place for recording the

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* See Housing on page 17

** To contact an architect, call the office of the American Institute of Architects. If there is not one listed call an architect's office.

information gathered by the class. Maps of specific areas or outline maps on which to record data are available. Contact your community's planning commission or a local architect or planner who may be able to obtain what you are looking for. Zoning maps, street maps, land use plans, demographic studies and aerial photographs are available for most communities.

Maps prepared by the U.S. Coastal and Geodetic Survey are commercially available. Sometimes guidebooks or an atlas will have highly detailed maps of your locality. Or students can draw "maps" of the classroom.

Chambers of Commerce, historical societies, science and art museums, restaurants and other commercial interests have maps that expand more specific interests.

Another type of map -- a set of blueprints for your school -- may be acquired from the architect who designed your school or from the school administration. You may use this as a catalyst to study construction materials, how spaces are arranged, "people flow" and where busy "intersections" of people occur, heating, air-conditioning and electrical systems, how the building is placed on its site, landscaping, scale, the placement of windows and doors, and how all these things shape the students' learning environment.

Guests coordinated with this school building "map" study might include a school administrator, school board member or architect involved in planning the school, or perhaps other users of the school -- a janitor, for instance. They can review the major decisions made, trade-offs and compromises of future plans. They might work with the class in evaluating how the school is working or suggesting changes which might be made. Other uses of mapping are given in the examples section.

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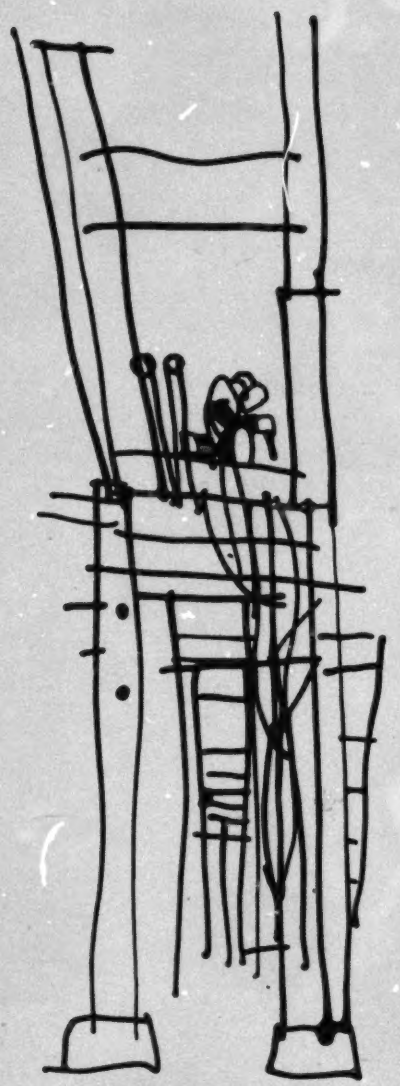
SUGGESTED ACTIVITIES

Classroom activities using the man-built environment as a live teaching laboratory have been successfully used in all grade levels on any number of topics. The following classroom-tested examples will show you how other teachers have applied the approaches and resources you have just read about.

Understanding Where You Live

-- Housing - The most important environment to a student is his or her home. Look at similarities and differences in human and animal habitats. List kinds of human habitats (houses, apartments, etc.), elements of habitat areas (man-built, natural, services, etc.), and factors that should be considered in develop-



ment (climate, site, food, etc.). Take a walk and note natural habitats (insects, birds, plants, etc.), parts that make up their areas (materials, natural structures, etc.) and elements that determine location (water, wind, food, etc.). Compare the two lists for similarities and differences. What does this suggest about the choice of form and location or human habitats. An application of observations about housing is to provide an environment for a classroom pet. What are the pet's needs - dry, wet, light, dark, warm, cold, etc. Does it need privacy - exercise? Compare with the students' needs at home. Students can build simple toys or articles for the pet and study its preferences and reactions. This offers a valuable framework for environmental concepts.

Consultants: A pet store owner, a veterinarian, a housing developer, an architect discussing the considerations in designing habitats for people or leading a tour of various types of housing.

Changing the classroom environment

-- Designing for human proportions -- school furniture is often uncomfortable for students and built-ins are the wrong height. Measure body parts of everyone in the class, then measure the furniture and fixtures of the room. Graphs can determine the best height or sizes for a "comfortable fit" and medians for the group. Measure people of varying ages and objects for specialized uses. Compare and analyze data. Follow-up can include rates of growth, ethnic differences, and trade-offs of cost for comfort.

Consultants: furniture designer, health instructor, an interior designer to discuss "systems interiors", an architect to discuss projects designed for individuals in contrast to those for public use; perhaps a clothing designer.

-- Planning a personal space -- a way of discovering individual space requirements using appliance boxes, sono-tubes, duct tape, plastic sheeting, string, pillows, foam rubber, etc. Have each student build a "personal space" -- a place to feel free and relaxed. Require that each structure must touch another and have its own entrance. Evaluate the designs on the basis of performance. Is it comfortable for the owner? For others? How does it give privacy? Does the project provide a sense of community? This study can help children understand that a community is a complex relationship of many things. By then rearranging seating and dividers for specific activities in the classroom your students can experience group decision-making and consider the effect on others. You can then see how this will change when you invite another class to join you for awhile.

Consultants: a behavioral scientist, a stage director, an architect to discuss the designs and how they meet the needs of the users.

References: Personal Space, Robert Sommer, 1969, Prentice-Hall,

NITE HOURS
NO CHECKS
PARKING

"Literary or scientific, liberal or specialist, all our education is predominantly verbal and therefore fails to accomplish what it is supposed to do. Instead of transforming children into fully developed adults, it turns out students of the natural sciences who are completely unaware of Nature as the primary fact of experience; it inflicts upon the world students of the humanities who know nothing of humanity, their own or anyone else's.

"In a world where education is predominantly verbal, highly educated people find it all but impossible to pay serious attention to anything but words and notions. There is always money for, there are always doctorated in, the learned foolery of research into what, for scholars, is the all-important problem: Who influenced who to say what when? Even in this age of technology the verbal humanities are honored. The nonverbal humanities, the arts of being directly aware of the given facts of our existence, are almost completely ignored."

Aldous Huxley
The Doors of Perception

The Hidden Dimension - Edwart T. Hall, 1966, Doubleday; will give you many more ideas for lessons about space.

History lessons provide an opportunity to study environmental education

-- How did your town develop? Who started it? Why was it started? Why is it? Where it is? What was the effect of climate, terrain, water, transportation, trade? How did the city limits change throughout its history? Activities useful in developing these concepts might be obtaining maps from City Hall; interviewing local historians, older citizens, and city planners; and researching newspaper archives. This will assist the students in comparing their present community with what it used to be and to identify possible future trends.

-- A fourth grade class constructed a diorama of their neighborhood as it was in 1600, 1850, 1920, and as it is today, to clarify the forces at work altering their environment.

-- High school students looked up local projects built under WPA, PWA, HUD and Model Cities as part of various units in recent American History. They assessed the value and purpose of the buildings, parks, or bridges and designed a works program of their own based on their analysis of the community's present needs.

-- Classes have developed neighborhood questionnaires and interviewed citizens on environmental issues in order to understand their own and other people's priorities for public and private facilities. Discussing the results with political and business leaders helped the classes appreciate that decisions often require compromises. *

Combining tours and guests has worked well

-- In a Cambridge, Massachusetts, urban awareness program, local architects bring their own direct experiences into the classroom. With fourth grade students they look at how buildings work and take walking tours of the neighborhood and trips to construction sites. These architects are invited into the classrooms through the district's social studies department.

-- Organizations such as Junior League, American Association of University Women, Women's Architectural Leagues and/or school district curriculum or environmental education directors have developed urban tours focused on using the five senses to experience and sharpen students' awareness of the environment, and to investigate relationships of past and present, built areas and natural areas and ethnic influences.

References: Two books have helped a group in Portland, Ore.

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* See example on interviewing, page 12

establish a tour program: Image of the City, Kevin Lynch, 1960, MIT Press, gives a five point identification system for "seeing" a city; and Experiencing Architecture, Steen Eiler Rasmussen, 1962, MIT Press, gives several different identification methods using the terms of art and architecture.

Mapping has rich possibilities

For mapping it helps to provide pre-drawn base maps and to help students develop a simple group of symbols or color-coding before beginning. Some successful applications have been:

-- Having each student mark his route from home to school, then making a composite map of the class's combined routes to school. In discussion determine why the routes developed; you might compare how highway and railroad routes develop at a larger scale.

-- Making a child's guide to the town by mapping all the play areas used by various age groups and activities. Similar to the example above, you might discuss why play spaces are where they are and why they are laid out as they are and what types of activities would not be compatible with the play areas. (Gardening, for instance.)

-- Mapping the "people movement pattern" inside and around the school, recording its frequency, who the users are, and identifying problems which arise from this use and suggesting possible solutions.

-- Having your class develop a chart of collective people needs such as recreation space, post offices, public meeting rooms; then locating on a map where these things presently exist and making a study as to whether their locations adequately meet the community's needs.

Some environmental education objectives of these mapping excercises are to extend the learning experience into "reading" their own maps and thus to show the children that the shapes and uses of the environment can be measured, displayed and changed; to stimulate children to look for the factors that make their environments useable and enjoyable, and then to work out criteria for evaluating changes instead of simply accepting whatever happens; to have the children recognize the importance of designing places that suit the people using them. Students develop mapping, analysis and communtcation skills in working out these activities.

Consultants: geographer, surveyor, highway engineer, park official, architect to discuss site planning.

Measuring excercises also can be built environment lessons

-- A class of fourth grade students asked each other "how big is an acre?" Then each walked out a 208-foot square somewhere

in the town and compared what was found in each acre through short reports, diagrams and numerical data (such as the number of dwelling units, stores, trees found in the area.) The results led to discussions about pros and cons of various densities and how one acre related (or didn't relate) to another.

-- How big is 15 minutes ? A seventh grade class diagrammed the difference between travel by foot, by car, by plane. The implications weren't all clear to them until they drew up personal lists of what they wanted to have 15 minutes from where they lived.

-- One thing which can modify children's views of their world is to help them discover the concept that the environment was built for them. Expand on the Human Proportions Excercise, p. 18, and enforce the realization that the size of everything is based on human size. Using rulers, yardsticks, tape measures, or anything, measure the width of the doors and the corridor; the height of window sills, doors, ceilings and steps; the depth of a stair tread, a closet, etc. Translate measurements of feet and inches into a child's height and width. The idea that a door is two children wide and a seat is low enough to let children's feet touch the floor is a more interesting way to look at it. Compare the size of a dog house with the houses the children live in. Are dog houses different sizes for different kinds of dogs? Would it be a good idea to have houses different sizes? What problems would develop? Compare the size of a home with a supermarket, a church, etc. Why are they different sizes?

Consultants: A commercial fixture manufacturer, an artist discussing human proportions, a builder discussing the effect on construction sizes of standard lumber sizes, an architect discussing scale and proportion including the Greek concepts.

Classes can explore how our feelings and senses are influenced by the built environment

-- If a portable tape recorder is available to you, a group of students can record neighborhood sounds; another group or class can then try to identify them. The sound "clues" in our environment often affect us more than we realize. With instruments you have or make try to duplicate the sounds you hear and develop them into a city rhythm.

-- You can take your class on a Mind Trip to help students realize the importance of various spaces and objects. Have them relax and close their eyes; slowly give guiding directions for them to re-create mentally as much as possible from various places -- their route home from school, their favorite places in their homes, their least favorite or most uncomfortable spaces, their favorite places three years ago, classrooms in previous school years, and so forth. Discussion and comparison of each person's Mind Trip is important in revealing how individual and strong our environmental contacts can be, even though we may

"The power of architecture to bring order into our communities, to symbolize our values and aspirations, to reflect the technological and economic underpinnings of our society, and to offer us moving aesthetic experiences is very real, but far too little known."

"It may be comforting to know that, like the man who discovered he had been speaking prose all along, you have been teaching environmental studies since you entered the classroom. Regardless of your specialty or grade level, you have always been concerned with getting your students to examine relationships between individuals, between the ind individual and society, and between societies."

"Critical analysis of the present environment prepares students to do something to improve it."

"That classroom work leading directly to action in the real world is essential, for environmental education, if it is anything, is preparation for life."

C. Richard Hatch

not be conscious of the effects as they occur. This will be a good introduction to the planning personal space exercise on p. 18.

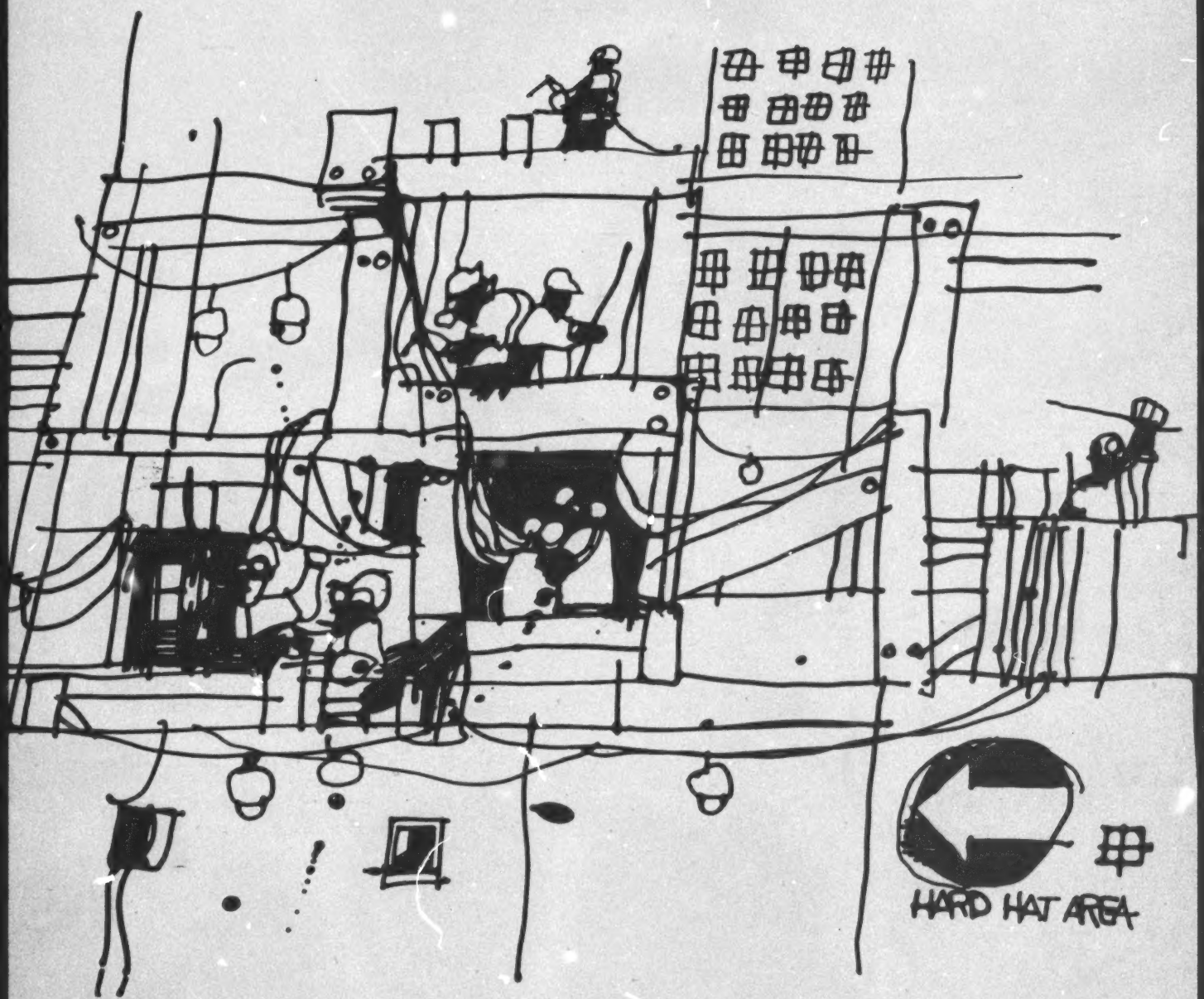
-- To expand the idea of personal and public space architects in Kansas City are taking a project called "Box City" into the schools. First they help the class tape newsprint to the floor and lay out a street system. Buildings are made of cardboard boxes of varying sizes covered with Kraft paper. They can then be moved around, ruled out, or modified as various choices and constraints in community development are considered. Architects in Nashville, Tenn. use the "Box City" as a basis for an Urban Game in which each player is given a card indicating his or her role in the community (i.e. mayor, developer, resident, etc.). A problem is posed, such as finding the route for a four-lane connection street and the location of a site to be acquired by the city for a park. All players read aloud the text on the back of their individual cards, explaining the roles they are to play. They are given a rope for making trial runs before the route is chosen. They become immersed in their roles and a vigorous discussion usually ensues.

-- The "Box City" game lasts about 30 to 45 minutes and the final problem solution is rarely the same as different groups play the game -- which points up the difficulties of the decision-making process.

So that decision-making does not reach an impasse, more input is helpful. The class might apply their model to an area they know. Architects in Portland, Ore. made a "Visual Survey" using maps, cameras, interviews and historical information to determine "where they were" and used this as a basis to determine the direction the "City" might take in the future.

Consultants: (it is a good idea to have a team for evaluation of the projects) a city councilman or the mayor, a highway engineer. a park official, a member of the planning commission, a private developer, a landscape-architect, an urban planner, a member of a senior citizen's community, an architect from a very large office and one from a small office.

Reference: City, David Macaulay, 1974, Houghton/Miffin Co., written for children but interesting to adults, it gives a simple description of Greek concept of city planning.


HARD HAT AREA

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HOW TO EVALUATE YOUR PROGRESS

The results of your environmental education emphasis will probably not be measurable with end-of-the-week test scores or other statistical indicators. Your results, however, will be more than a warm glow in knowing you tried as an educator to foster awareness of the built environment.

The results may not be immediate. To be effective, your built environment activity and programs should be a continuing instead of a one-time, one-year-only effort. The continuing emphasis can be quite informal -- while a fourth grade teacher uses environmental education as a vehicle for social studies topics, a fifth grade teacher may associate built environment projects with science, math and art units. The children's growing sense of control and conscious awareness of their surroundings may not become evident until the second or third year of classroom environmental education emphasis.

The true test of any environmental education emphasis -- whether it is one year or many years -- will come much later, when your students as adults will be able to respond personally and directly to environmental situation They must be equipped to solve built environmental problems creatively, and will be thanks to your efforts in these critical early years.

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A BRIEF LIST OF RESOURCES

Here's a starter list of materials to help you know the subject of built environmental education better and also to help you get your program underway. Prices shown are current as of Spring 1974.

BOOKS

-- Close-Up: How to Read the American City. A straightforward book, geared to upper grades and adults, providing new ways of perceiving the built environment in visual, economic, cultural and social terms through everyday evidence. Author Grady Clay touches every scale of America -- from farm paths to super highways -- and his examples are drawn from virtually every region. $10.00 hardback from Praeger Publishers, 111 Fourth Avenue, New York, N.Y. 10003.

-- Our Man-Made Environment. A flexible workbook geared for junior high but adaptable for other ages. The excercises present

"The long-range effects of man's actions are difficult to measure until man has better monitoring instrument: He must therefore use his tools with extreme caution. Hence, a concern for a quality environment must be a part of every man's education."

"The man-made environment makes the strongest impact of man because it is where he spends most of his time."

"The effects of environment on man's psychological as well as physiological processes are often vaguely felt, rather than consciously perceived. Environmental education must focus on understanding these effects."

James Pratt, FAIA

a comprehensive approach to personally understanding our immediate surroundings. Written by the Group for Environmental Education, Inc. (whose acronym is GEE!) the workbook costs $4.95 from the MIT Press, 28 Carleton Street, Cambridge, Massachusetts 02142. A teacher's guide is available directly from GEE! (at 1214 Arch Street, Philadelphia, Pennsylvania 19107) for $2.00. Be sure to ask both the MIT Press and GEE! for their environmental education publishing lists, since both have other interesting products.

-- Architecture and Interior Environment: A Book of Projects for Young Adults. A book full of simple classroom building and construction ideas using commonly available items. The projects are aimed to give fifth and higher grade level students a better understanding of structural principles, scale and space. Authored by Forrest Wilson, the book is available for $6.95 from Van Nostrand Reinhold Company, 300 Pike Street, Cincinnati, Ohio 45202.

-- Beginning Experiences in Architecture: A similar book related to broader experience and intended especially for elementary art programs in upper grades. Written by George E. Trogler, it is available from Van Nostrand Reinhold for $8.95.

-- Yellow Pages of Learning Resources: A guidebook exposing the city itself as full of potential education. It helps students glean information directly from the people, places and processes of any city, and town, any village. The book, adaptable to all grades, takes up 70 categories (such as printing, laundries, food distribution) and also gives students some opening questions to ask on personal visits. Edited by Richard Saul Wurman with support from Educational Facilities Laboratories. $1.95 from the Massachusetts Institute of Technology Press.

-- Landscapes: Selected Writing of J.B. Jackson: Short, articulate and inclusive essays for high school and older readers. It is edited by Ervin H. Zube. His descriptions and analyses of typical American built environments are particularly valuable. $2.50 from the University of Massachusetts Press, Amherst, Massachusetts 01002.

-- Your City Has Been Kidnapped: A book of activities, photographs, games, questions and guides to help provide insight into the built environment. By W. Ron Jones. It is applicable to a wide age group. The book is $2.00 from Addison-Wesley Publishing Company, Reading, Massachusetts 01867.

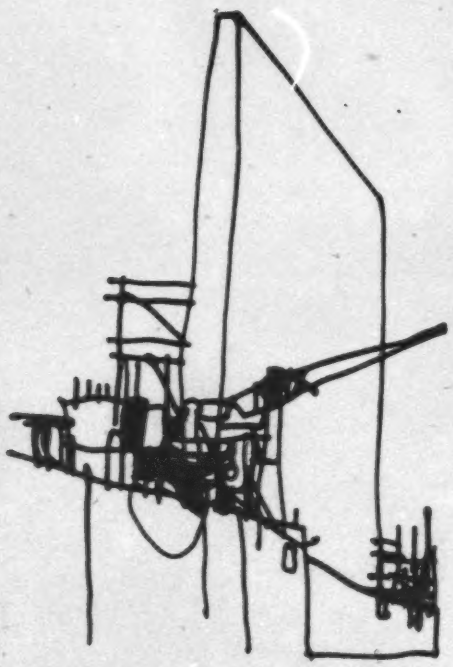
-- Learning About the Built Environment: A sourcebook in environmental education for use at elementary and secondary grade levels. Researched and written by Dr. Aase Eriksen of Educational Futures, Inc., the book is a catalog of resources for teachers and students. $3.00 prepaid, from the National Association of Elementary School Principals, 1801 N. Moore Street, Arlington, Virginia 22209.

GAMES AND MULTI-MEDIA KITS

-- Ecolab, A Study of the Rural and Urban Environment. Ecolab is a sturdy box of 208 plasticized sheets with self-motivating open-ended activity ideas on each. Approximately one half of the cards are aimed at city environments (streets, neighborhoods, shopping centers, etc.); the others look at rural environments (dairy farms, grain farms, open space.) Its authors, J. Leonard Johnson and John H. Mann, write it for third to fifth grade students. $33.50 from the Benefic Press, 10300 West Roosevelt, Westchester, Illinois 60153. It's well worth that price.

-- If you Live in a City Where Do You Live. This five-week curriculum in "urban conservation" (with five color documentary television programs, sets of 25 color activity cards for student use, and a teacher's guide) is very well presented and relevant to any environmental education program -- city or small town. Curriculum development was by Ann S. Clarkeson, the WGBH Educational Foundation. One to nine sets of the activity cards cost only $2.00 each; $1.60 each for larger orders. The video tapes can be leased starting at about $50.00 per tape (prices vary with situation); 16mm films of the five programs are available but more difficult to get. Order from National Instructional Television, Box A, Bloomington, Indiana 47401. The 25 activity cards and teachers guide alone can give you a good resource file.

-- New Town. This educational game, designed and tested at Cornell University, allows players to develop (through private speculation, open discussion and compromise) a community already surveyed into blocks. Realistic and educational fun for junior high level and above. Harwell Associates, Inc., Box 95, Convent Station, New Jersey 07961, sell the game in a family version for $10.00, a ten-student kit for $16.00 and twenty-student kit for $28.00.



-- Urban Action: Planning for Change, is a large and useful multi-media curriculum kit containing student workbooks, nine good sound filmstrips and an urban planning reference file. The kit deals chiefly with the urban neighborhood -- its history, its components, recognizing its problems and the planning process to help solve those problems. Although written for eight graders, sections of the kit have been successfully used for groups from age 10 to 60. Available from Ginn & Company, 191 Spring Street, Lexington, Massachusetts 02173. $208.00.

-- United Science and Mathematics for Elementary Schools (USMES), developing 32 units as examples of problem solving style of learning about real and practical problems of local school/community environments. Available at reasonable prices from Order Services, USMES/EDC, 55 Chapel Street, Newton, Massachusetts 02160.

FILMS AND STRIPS

-- How to Look at A City. Architectural commentator Eugene Raskin takes you on an evaluative tour of contrasting neighborhoods. Elements and alternatives of scale, diversity and density are examined. The 30-minute, 16mm black and white film can be purchased for $125 or rented for $6.75 from Indiana University Audio-Visual Center, Bloomington, Indiana 47401. Use order number CS-1515.

-- Who Built This Place? The Once and Future Landmark. This film is a clever and revealing look into the politics and personalities behind landmark-scale buildings. Examples investigated include the Boston City Hall, San Francisco's Trans-America pyramid, a private bank tower and the Dallas City Hall. Available from KERA-TV, 3000 Harry Hines Boulevard, Dallas, Texas 75201. The thirty-minute film is in 16mm color.

-- The Art of Seeing. These six sound filmstrips start the viewer -- in a step-by-step process -- towards seeing more in the visual vocabulary of the artist's language. Includes filmstrips on How to Use Your Eyes, Lines, Colors, Shapes, Space. $90.50 with records, $110.00 with cassettes from Scholat Productions (A Prentice-Hall Company), 150 White Plains Road, Tarrytown, New York 10591.

-- No Time for Ugliness. This film vividly states problems and challenges associated with beauty vs. ugliness in the urban environment; it also suggests some solutions. 16mm color, sound. 26 min. Free loan. Purchase $100.

-- The Best We Can Do. Zeros in on the large housing developments which have created wastelands of ugliness around most major cities. Shows what good design can do to create new towns and villages; a process for accomplishing this is outlines. Brochures available to hand out at showings. 16mm, color, sound. 15 min. Free loan. Purchase $50.

-- The Noisy Landscape. It shows how signs and well planned graphics can add to the beauty of the community and describes a sensible process for sign control. Brochures available to hand out at showings. 16mm, color, sound. 14 min. Free loan. Purchase $50.

-- The Right of Way. Shows how highways can ruin cities and how good design and other related elements in the urban fabric can employ highways to improve urban areas. Makes a strong plea for balanced transportation systems and planning by design concept teams composed of architects, engineers, sociologists, government leaders and others concerned with the environment. Brochures available to hand out at showings. 16mm, color, sound. 14 min. Free loan. Purchase $50.

-- Downtowns for People. Discusses what we can do to make our downtown areas more pleasant places for the pedestrian

using both European and American examples of successful urban spaces. Accompanying brochure available to hand out at showings. 16mm, color, sound. 26 min. Free loan, sale $125. (AIA Chapters only). Available to the public from Roger Hagan Associates, 1019 Belmont Place E., Seattle, Washington 98102. Rental $35.00 per week. Purchase $275.00.

The following three filmstrips are available to educators for $2 per filmstrip. Each is accompanied by a printed teachers guide. Payment must be included with your order, which should be directed to the AIA Order Fulfillment Department, 1735 New York Avenue N.W., Washington, D. C. 20006.

-- Architecture and Your Life. This 20-30 minute presentation deals with the effect of architecture on man, and the unprecedented responsibility of today's citizen for deciding upon the quality of the environment. Suitable for 6th-12th grade social studies and art classes. 35mm, 50 frames, color. Purchase $2.

-- Nature, Man, and Architecture. This 20-30 minute presentation discusses the use of architectural design to solve human problems in primitive and modern societies. It relates design, climatology, geography, and social anthropology, and the ingenuity of man. Especially suitable for grades 5 to 8. 35mm, 50 frames, color. Purchase $2.

-- Our Alabaster Cities. This 25-30 minute presentation compares urban ugliness with beauty and order. It concludes that only by knowing the difference, and insisting upon the good, will we be able to live in the alabaster cities of America the beautiful. Suitable for high school social studies classes as a starter for a discussion period. 35mm, 54 frames, color. Purchase $2.

IF YOU WANT MORE

A longer list of environmental education teaching tools has been compiled by the Department of Education and Research, American Institute of Architects, 1735 New York Avenue N.W., Washington, D.C. 20006. The longer list may be of special interest to school librarians and instructional media centers, and of course, in environmental education resource centers as they are set up in your schools.

All these materials, you've noticed, cost money. But don't despair if you can't afford them or your school cannot buy them for you. Environmental education relies upon learning by experiencing. No matter how many texts, workbooks, kits or films are produced they are really only a supplement to the resources which exist everywhere around you.

The architects who contributed quotes to this publication are:

C. Richard Hatch
Hatch is best known in environmental education for his innovative community and school based program in New York City, which eventually became the Urban Action curriculum kit. Hatch has continued to be active in developing more classroom materials -- a total of nine published kits and programs to date. He continues to write and practice architecture in New York City.

Alan Levy, AIA
Levy is a partner in the Group for Environmental Education, Inc. (GEE!) and an architect in Philadelphia. His publications include numerous workbooks and teacher's guides for environmental education; he has also been active in developing classroom programs with teachers.

James Pratt, FAIA
Pratt is a Dallas architect and a leading figure in man-made environment education there. His current activity in environmental education is with APECS -- Associated Professionals Education Consulting Service -- an interdisciplinary group working in classroom programs, teacher training and curriculum development.

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